INTRODUCTION
L-arginine has been marketed for years in the sports and performance field as a vasodilator to increase blood flow to muscles causing a rise in performance (Alvares et al., 2012a). There has been inconsistent data in the health field both in for and against L-arginine supplementation on healthy individuals, due to mostly healthy people already having saturated stores of L-arginine available to them (Alvares et al., 2011). To study the effects of supplementation, previous studies have used flow-mediated dilation (FMD) as an assessment tool to cause a vasodilatory response by the body that is measurable and solidified (Corretti et al., 2002).

Combining FMD with resistance exercise, a process that itself creates vasodilation, may allow a possibility for an L-arginine supplement to enhance the vasodilatory response of the FMD tool due to the body needing to use the L-arginine stores that it currently holds. This possible additional vasodilation could provide increased blood flow to working muscles and increase performance. By using FMD to assess endothelial health, we are able to discern if supplementation increases vasodilation or not. With an increased endothelial health, those supplementing with L-arginine may also be able to have an increased performance due to increased blood flow and delivery of nutrients to working muscles.

PURPOSE
The purpose of this study is to determine the effects of acute L-arginine supplementation on the endothelial health in healthy populations by assessing the FMD in the brachial artery both before and after exercise to fatigue of the biceps and triceps.

METHODS
Thirty healthy, physically active males and females, fifteen males and fifteen females, 18-25 years of age were recruited, of which all 30 (mean ± SD: age 20.4 ± 1.8 years, height 176.9 ± 10.2 cm, body mass 76.0 ± 12.2) volunteered for the study. In a randomized, cross-over, double-blind, placebo controlled clinical trial, participants completed 5 sets of 10 isokinetic elbow extension/flexion exercise in which they consumed either placebo or 3 g L-arginine one hour prior. Heart rate (HR), blood pressure (BP), peak torque (PT), brachial diameter (BD), set-work time, set-work efficiency (Wt), and FMD were measured variables.

RESULTS: PT dropped significantly after the resistance exercise bout for both elbow flexion (p<0.001) and extension (p=0.014) with no differences in rate of WF respectively.

CONCLUSION: The increase in brachial diameter due to fatiguing exercise was not enhanced by acute supplementation with L-arginine nor did supplementation alter FMD responses after exercise.

REFERENCES

ACKNOWLEDGEMENTS
This research was funded by the Northland ACSM Innovative Student Research Grant, the NDSU College of HIDE, and the NDSU HNES Department.

The Acute Effects of L-arginine Supplementation on Flow-mediated Dilation after Resistance Training to Fatigue
Muscle, Metabolism, and Ergonomics Laboratory, Department of Health, Nutrition and Exercise Sciences
North Dakota State University, Fargo ND